CLAIMS

1. An adsorbent comprising a zeolite for a heat pump characterized in that the zeolite has a moisture adsorption of at least 28% by weight as measured at a temperature of 25°C under a partial pressure of water vapor of 5 Torr, and exhibits a moisture adsorption difference in the range of 15% to 25% by weight between a moisture adsorption as measured at a temperature of 25°C under a partial pressure of water vapor of 5 Torr and a moisture adsorption as measured at a temperature of 100°C under a partial pressure of water vapor of 15 Torr.

2. The adsorbent comprising a zeolite for a heat pump according to claim 1, wherein the moisture adsorption difference between a moisture adsorption as measured at a temperature of 25°C under a partial pressure of water vapor of 5 Torr and a moisture adsorption as measured at a temperature of 100°C under a partial pressure of water vapor of 15 Torr is in the range of 17% to 25% by weight.

3. The adsorbent comprising a zeolite for a heat pump according to claim 1, wherein the moisture adsorption difference between a moisture adsorption as measured at a temperature of 25°C under a partial pressure of water vapor of 5 Torr and a moisture adsorption as measured at a temperature of 100°C under a partial pressure of water vapor of 15 Torr is in the range of 19% to 25% by weight.

4. The adsorbent comprising a zeolite for a heat pump according to any one of claims 1 to 3, wherein the zeolite has a FAU type zeolite structure having a SiO_2/Al_2O_3 mole ratio of at least 3.

5. The adsorbent comprising a zeolite for a heat pump according to any one of claims 1 to 4, wherein 30% to 75% of the ion-exchangeable cations are exchanged by proton, and the cation other than proton in the ion-exchanged zeolite comprises Na^+ alone or Na^+ plus at least one metal ion selected from univalent metal ions other than Na^+, and divalent metal ions.

6. The adsorbent comprising a zeolite for a heat pump according to claim 5, wherein the zeolite has a lattice constant

in the range of 24.530 to 24.625 angstroms.

7. A process for producing the adsorbent comprising a zeolite for a heat pump as claimed in any one of claims 1 to 6, which comprises the steps of:

ion-exchanging an exchangeable cation in a zeolite, and then,

heat-treating the cation-exchanged zeolite in a stream of air or nitrogen.

8. A process for producing the adsorbent comprising a zeolite for a heat pump as claimed in any one of claims 1 to 6, which comprises the steps of:

ion-exchanging an exchangeable cation in a zeolite, and then,

heat-treating the cation-exchanged zeolite in the presence of steam.

9. A zeolite-water heat pump system comprising the adsorbent comprising a zeolite for a heat pump as claimed in any one of claims 1 to 6.

10. A temperature controller provided with the zeolite-water heat pump system as claimed in claim 9.

11. A cooler provided with the zeolite-water heat pump system as claimed in claim 9.

12. A water-removing apparatus provided with the zeolite-water heat pump system as claimed in claim 9.

13. An open cycle moisture adsorption-desorption system comprising the adsorbent comprising a zeolite for a heat pump as claimed in any one of claims 1 to 6.

14. A dehumidifier provided with the open cycle water adsorption-desorption system as claimed in claim 13.